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SUMMARY

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LARGE-SCALE SOIL MAPS AND THEIR USE IN THE AGRICULTURE OF THE BYELORUSSIAN SSR

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LARGE-SCALE SOIL MAPS AND THEIR USE IN THE AGRICULTURE OF THE BYELORUSSIAN SSR

by

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Large-scale soil maps are very important for scientifically founded agricultural practice.

In Byelorussia large-scale soil mapping began in 1957 and will be accomplished in 1963. By that time more than 10 million hectares of land will have been surveyed.

The theoretical and practical guidance of soil surveys is effected by the Byelorussian Research Institute of Soil Science. Chairs of soil science of higher agricultural educational institutions and the University, Research Institute of Forest Management, agricultural experiment stations and district agrochemical laboratories also take part in this work.

There are about 20 soil survey teams at the above - mentioned institutions, each team including 20-25 soil scientists and technicians.

Soil surveying is carried out on lands of all farms and agricultural enterprises and includes all types of land within a surveyed area.

Mixed soil samples are analysed, one sample from each 5-10 hectares.

As a result of soil surveys, the following survey documents are drawn up for each farm or agricultural enterprise: a soil map, a cartogram of acidity, liming and phosphoritising of soils, a cartogram of the availability of moving phosphorus and potassium, a cartogram of vegetation and reclamation of fodder - and feed-producing lands, a cartogram of agro-economic soil groups and rational land utilization and a soil survey record.

A soil map shows genetic types and varieties of soils in different colours and hachures; a soil map also shows soils which have changed their properties under the influence of human activity (drained, cultivated soils, and so on).

A cartogram of acidity, liming and phosphoritizing of soils specifies five soil groups. This classification is based on pH data and the degree of saturation with bases. This cartogram suggests rates of liming and a soil survey record contains detailed recommendations on liming practices under the conditions of a certain farm.

A cartogram of the availability of mobile forms of phosphorus and potassium is based on mixed samples taken from the humus horizon, phosphorus - by the Kirsanov method, potassium - by the Peyvè method.

Cartograms of vegetation and improvement of fodder-and feed-producing lands are compiled for farms with a great area of hay fields and pastures.

A cartogram of agro-economic groups of soils and rational land utilisation is the result of soil surveying. It outlines soil groups with similar cultural and economic characteristics, areas with different susceptibility to erosion, suitable for tillage, requiring improvement or reclamation; it also suggests the best cropping pattern, including crop rotations, orchards and so on.

A soil survey record describes the conditions of soil formation and soil properties and suggests recommendations on the best land utilization and fertilization.

Soil surveying is usually accompanied by soil judging.

The soil surveys have shown that all farms with neutral and phosphorus and potassium abundant soils (over 10-15 mg of P_2O_5 per 100 g of soil) provide an average several years' yield of 25-30 centners of grain per hectare. As to farms where acid soils with 5-10 mg of a phosphorus content predominate they do not usually obtain more than 10-12 centners of grain per hectare.

A high level of fertilization and optimal cultural practice under the conditions of the Byelorussian SSR are of prime importance for obtaining higher and stable yields. The problem of fertilizers is therefore a vital problem for the republic's farms.

Soil surveys reveal abundant reserves of local fertilizer materials - peat, lime, vivianite and so on. Cartograms of soil acidity and availability of phosphorus and potassium allow the application of fertilizers at optimal rates; they may save much money in the republic.

Large-scale soil maps are regarded as an important measure aimed at improving agricultural production and at perfecting cultural practice.

Soil survey data are generalized and brought together on general small-scale maps and are given to regional production divisions to be used for planning purposes.

Properties of soils change in the process of their utilization this means that regular soil surveys should be performed.

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